Summary of Changes to Genesis WDRs and Monitoring and Sampling Plan, 1/03/2013

The Genesis Solar Energy Project originally proposed use of wet cooling. Earlier versions of the WDRs included a description of the project's proposed use of wet cooling. The project was ultimately permitted by the Energy Commission with dry cooling however. Recently, the Waste Discharge Requirements (WDRs) were revised to reflect the project's permitted use of dry cooling. The changes to the WDRs reflect the new design and are summarized below for convenience.

Staff finds the proposed changes to the Genesis WDRs acceptable and well within the scope of the originally analyzed project. Below is a brief summary of the changes proposed in the revised WDRs.

WDR Revisions

Item 10. Added language: "which will reduce plant make up water requirements compared to a wet cooled power plant. A wet surface air condenser (WSAC) will be utilized to provide auxillary cooling for power plant equipment. Water for WSAC cooling, cooling make up,"

Item 11: It is estimated that 3 feet of solids will accumulate in ~~7~~ 14.5 years

Item 36: Added language: "During construction of the Facility, storm-water will be retained in the evaporation ponds as required and sampled prior to releasing from the site."

Item 37: Clean water discharged from the oil water separator will be used on Project site by discharging it to the ~~cooling tower or to the~~ ~~raw water storage tank~~ evaporation ponds.

Item 39: Water usage estimate changed from 1644 acre-feet per year per to 202.

Item 44: Added language "smooth HDPE geomembrane liner with a white upper surface and black underside. During installation, the white upper surface reduces heat, minimizes wrinkling, reduces expansion and contraction and assists in the reduction of condensation under the liner."

Item 45: Now specifies a 200 mil leak collection layer. Previously thickness was not specified.

Item 49: "with a white upper surface and black underside. During installation, the white upper surface reduces heat, minimizes wrinkling, reduces expansion and contraction, and assists in the reduction of condensation under the liner."

Item 50: Now specifies a 4" pipe for the moisture detection system.

Item 52: Now specifies specific sub-base concrete type.

Item 55: 5 acre pond changed to 3.7 acre.

Item 58: Two 5 acre ponds changed to two 3.7 acre ponds.

Item 59: Wastewater discharge revised from 19,000 to 17,600 gpd during June and 12,000 to 11,400 gpd in December.

Item 60: New estimate of sludge is 6.5 feet in 30 years. Previous estimate was 4.5 feet. This revises the waste sludge figure upwards from 12,000 tons to 20,500 tons in 30 years (email from Michele Santangelo, 12-12-2012).

Staff Comment: Although the total tonnage estimate was revised upwards in the WDRs, the mass is significantly less than staff reported in the final staff analysis (214,500 tons). Furthermore the change from wet to dry cooling results in a significant reduction in waste volume. The dry cooling waste stream is therefore within the range of tonnage originally assumed by staff and also significantly less voluminous than the wet-cooled scenario. Staff considers this a beneficial reduction in the waste stream that would result in less total environmental impact.

Monitoring and Sampling Plan Revisions

NO CHANGES

Recommendations

The Revised Staff Analysis for the Genesis project assumed the total waste would be 214,500 tons (http://www.energy.ca.gov/2010publications/CEC-700-2010-006/CEC-700-2010-006-REV.PDF, see Section C.9-54). The expected waste discharge of 20,500 tons is well within the scope of the original analysis where 214,500 tons of waste was expected. Staff concludes the changes to the appendices referenced in Condition of Certification **SOIL&WATER-6** will not result in any significant impact on the environment or result in any change of the condition. The proposed changes result from the owner finalizing the design. Staff has worked with the project owner and the Colorado River Basin Regional Water Quality Control Board in evaluating the changes. Staff recommends these changes be accepted as an approved project modification and the appendices be revised as proposed.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

BOARD ORDER R7-2013-0005

WASTE DISCHARGE REQUIREMENTS
FOR
GENESIS SOLAR LLC,
OWNER/OPERATOR
PROPOSED GENESIS SOLAR ENERGY PROJECT
CLASS II SURFACE IMPOUNDMENTS AND LAND TREATMENT UNIT
Near Ford Dry Lake – Riverside County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. Genesis Solar, LLC, (the Discharger) is proposing to construct, own and operate a concentrated solar power (CSP) electric generating Facility and a land treatment unit (LTU) on land owned by the Bureau of Land Management (BLM). The Facility referred to as the Genesis Solar Energy Project is located near Ford Dry Lake in Riverside County, California. The location of the project is shown in Attachment A, as incorporated here in and made a part of these requirements for waste discharge. The address for Genesis Solar, LLC, is 700 Universe Blvd, FED/JB, Juno Beach, FL 33408. The address for the land owner (BLM) is 1201 Bird Center Drive, Palm Springs, CA 92258.

2. These WDRs regulate the Facility's two evaporation ponds and the LTU. The evaporation ponds are designated as Class II Surface Impoundments Waste Management Units (WMU) and must meet the requirements of the California Code of Regulations (CCRs), Title 27, CCR §20200 et seq. The boundaries and Class II Surface Impoundments of the proposed Genesis Solar Energy Project are shown on Attachment B, as incorporated here in and made a part of this order.

3. The Discharger submitted a Report of Waste Discharge, dated August 27, 2009, for the proposed Genesis Solar Energy Project.

4. Definition of terms used in these WDRs:

a. **Facility** – The entire parcel of property where the proposed Genesis Solar Energy Project industrial operation or related solar industrial activities are conducted.

b. **Waste Management Units (WMUs)** – The area of land, or the portions of the Facility where wastes are discharged. The LTU and the evaporation ponds are WMUs.

c. **Discharger –** The term Discharger means any person who discharges waste that could affect the quality of the waters of the State, and includes any person who owns the land, WMU or who is responsible for the operation of a WMU. Specifically, the terms "discharger" or "dischargers" in these WDRs means Genesis Solar, LLC.

Facility Location

5. The Facility will be located in the Colorado Desert in Chuckwalla Valley between the communities of Blythe, CA (approximately 24 miles east) and Desert Center, CA (approximately 25 miles west). Ford Dry Lake is located approximately 1 mile south west of the Project. The Facility is located in Township 6S, Range 19E San Bernardino Base and Meridian. The Facility covers approximately 1,800 acres of Federal land managed by the BLM.

Surrounding Land Use

6. Current land uses around the Facility include I-10 to the south, the Palen McCoy Wilderness to the north, the Palen Dry Lake Area of Critical Environmental Concern (ACEC) to the west and open (unrestricted access) lands to the east. Most of the land near the Facility is managed by BLM. However, there are also private holdings in the area.

Facility Description

7. The Discharger is proposing to develop a 250-megawatt (MW) solar thermal power generating project, using concentrated solar trough technology. There will be two independent 125 MW units on site to provide a total net electrical output of 250 MW. Commercial operation is planned to commence July 2014.

8. The process to produce 125MW of electrical power in each module is as follows:

a. 650 to 800 acres of solar fields containing Parabolic Mirrors to collect the Sun's energy (field is oversized to ensure 125MW can still be generated when there is less sun);

b. Heat Transfer Fluid (HTF) absorbs the Sun's energy from the mirrors;

c. HTF creates Steam in the Solar Steam Generator (SSG);Steam drives the Steam Turbine Generator (STG);

d. then STG produces Electrical Power.

e. Solar Thermal Collection Field;

f. Dry/Air Cooling Condenser (ACC) area;

g. Power Block (161-230 KV sub station) including STG, heat exchangers, feedwater pumps and heaters and natural gas fired boilers;

h. Evaporation Ponds (two 3.7-acre ponds up to 7.4 acres total);

i. Bioremediation LTU (5 acres); and

j. Storm Water Detention Pond.

9. The solar thermal technology will provide 100 percent of the power generated by the Project; no supplementary energy source (e.g. natural gas to generate electricity at night) is proposed to be used for electric energy production. The Project will utilize a natural gas fired auxiliary boilers to reduce start up time and for HTF freeze protection. Freeze protection shall maintain HTF at a minimum 100 degrees Fahrenheit [°F]

10. The Discharger proposes to use dry cooling for power plant cooling, which will reduce plant make up water requirements compared to a wet cooled power plant. A wet surface air condenser (WSAC) will be utilized to provide auxiliary cooling for power plant equipment. Water for WSAC cooling, cooling make up, process water makeup, and other industrial uses such as mirror washing will be supplied from on-site groundwater wells, which also will be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). A package water treatment system will be used to treat the water to meet potable standards. A sanitary septic system and on-site leach field will be used to dispose of sanitary wastewater.

11. Project wastewater will be piped to lined, on-site evaporation ponds, which are designated as Class II Surface Impoundments. For safety and operational purposes, accumulated precipitated solids will be removed from the base of the evaporation ponds when they reach a depth of 3 feet. It is estimated that 3 feet of solids will accumulate approximately every 14.5 years. Dewatered residues from the ponds will be sent to an appropriate off-site landfill for disposal. No off-site backup cooling water supply is planned at this time; the use of multiple on-site water supply wells and redundancy in the well equipment will provide an inherent backup in the event of outages affecting one of the on-site supply wells.

12. The Project will include a LTU to treat soil contaminated with HTF. The unit will be designed in accordance with Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) requirements.

Climate

13. The Project is located in an arid desert climate; therefore there are extreme daily temperature changes, low annual precipitation, strong seasonal winds and mostly clear skies. Evaporation rates are higher than precipitation rates. Based on 60 years of data from Blythe Airport, the mean maximum temperatures in June to September exceed 100°F. Winter months are more moderate with mean maximum temperatures of high 60's to low 70's °F and minimums temperatures in the low to mid 40's °F. Although there are no average minimal temperatures below freezing point (32°F), the temperature has historically dropped below freezing point between November and March.

14. Average annual evaporation in the Facility area, based on published data at the Indio Fire Station 70 miles west of the Project site, is 105 inches, of which 87 percent of that evaporation occurs between March and October. Average annual precipitation in the Project area, based on the gauging station at Blythe Airport, is 3.55 inches, with August recording the highest monthly average of 0.63 inches and June recording the lowest monthly average of 0.02 inches. Per the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 for the Southern California area, 3.51 inches of rainfall shall fall in the 100 year, 24 hour storm event.

15. Winds in the Project area are generally south south west with a less frequent component of northerly winds (north through northwest). Calm conditions occur approximately 16.43% of the time, with the annual average wind speed being approximately 7.62 miles per hour (mph) (3.41 m/s).

Regional Topography and Drainage

16. The general topography in the area of the Facility consists of mountain ranges surrounded by extensive alluvial fans coalesced into bajadas that slope toward the topographic low-points of the valley, Ford Dry Lake and Palen Lake. The Project site is situated within the Chuckwalla Valley and is relatively flat. The Project site generally slopes from north to south with elevations of approximately 400 to 370 feet above mean sea level. There are no perennial streams in Chuckwalla Valley and a vast majority of the time, the area is dry and devoid of any surface flow anywhere. Water runoff occurs only in response to infrequent intense rain storms. Much of the area is subject to inundation either by sheet flow or flow confined to an expansive network of ephemeral washes, Palen and Ford Dry Lakes, and other local topographic low-points. The entire area drains first to these two dry lakes, and then to evaporation or groundwater.

Flood Hazard

17. The Facility is within "RIVERSIDE COUNTY AND INCORPORATED AREAS" within Federal Emergency Management Agency (FEMA); however there are no flood insurance maps provided for this area. The Site is not located in a flood hazard area identified in the Riverside County General Plan Safety Element.

Regional Geology

18. The region has undergone a complex geologic history that includes sedimentation, volcanic activity, folding, faulting, uplift and erosion. The Project area is underlain by Holocene to Miocene basin fill deposits (Stone, 2006). These deposits include younger alluvium, older (Pleistocene) alluvium, the Pliocene Bouse Formation and the Miocene fanglomerate. The uppermost alluvium in the basin consists of Holocene to Pleistocene alluvial fan, fluvial, playa, and aeolian (wind blown) deposits. In general, coarser alluvial fan deposits are found near the valley edges and grade into finer distal fan, valley axial (fluvial) and playa deposits near the low points of the basin. Holocene-age playa deposits are found in the Ford Dry Lake area and consist mainly of clay, silt, and sand above the water table (DWR 1963).The older alluvium (Pleistocene age) consists of fine to coarse sand interbedded with gravel, silt, and clay (DWR 1963). The Pleistocene alluvium likely comprises the most important aquifer in the area (DWR 1963). The Pliocene-age Bouse Formation is a marine to brackish-water sequence that is composed of a basal limestone overlain by interbedded clay, silt, sand, and tufa. Near the southeastern portion of the basin the Bouse Formation occurs at a depth between approximately 100 to 800 feet below ground surface (bgs) (Wilson and Owens-Joyce 1994).The fanglomerate lies unconformably below the Bouse Formation and is composed chiefly of angular to subrounded and poorly sorted partially to fully cemented pebbles with a sandy matrix (Metzger 1973). The fanglomerate is likely Miocene age; however, it may in part be Pliocene age (Metzer 1973). Near the southeastern portion of

the basin the fanglomerate occurs at a depth between approximately 800 to 5,000 feet bgs (Wilson and Owens-Joyce 1994).

Site Specific Geology

19. Geologic units near the project area consist of the recent dune sand, recent alluvium, and non-marine sedimentary deposits. The unconsolidated alluvial fan, river channel, and stream deposits consist of silt, sand, clay, and gravel. These also include recent floodplain deposits of the Colorado River including silt, sand, and clay. The nonmarine sedimentary deposits consist of older alluvium and fanglomerate, dissected with well-developed desert pavement and desert varnish in some areas. These consist mostly of clay, siltstone, sand, and gravel.

Seismicity

20. The Project site lies within the eastern part of Riverside County in a part of California considered not to be very seismically active. Although there are several bedrock faults off site in the mountains surrounding Chuckwalla Valley, these do not exhibit recent activity and are presumed to be Tertiary or pre-Tertiary in age (Stone, 2006). In addition, gravity anomalies suggest the presence of several subsurface faults beneath Chuckwalla Valley in the vicinity of the project area (Stone, 2006; Rotstein, et al., 1976). The gravity anomalies reflect abrupt changes in basement elevation strongly suggestive of dip-slip movements. In addition some of these faults may have undergone right-lateral strike slip movements. These faults are presumed Tertiary and likely inactive with very low chance of earthquakes.

21. The active faults considered most likely to produce large earthquakes potentially affecting the Project site are located at a considerable distance to the west and southwest and include the San Andreas, Imperial, and San Jacinto-Anza faults. Other smaller faults are located within approximately 100 kilometers (km) of the Site. These faults are believed to be capable of producing ground shaking with peak ground accelerations exceeding 0.10 times the force of gravity (0.10 g).

Seismic Shaking

22. A preliminary estimate of ground motions expected at the site was prepared using source and attenuation models developed by the USGS National Seismic Hazard Mapping Project (NSHMP, 2009) (see additional information at: http://earthquake.usgs.gov/research/hazmaps/)." For design of important Facility structures, a site-specific Probabilistic Seismic Hazard Assessment was completed as part of the Geotechnical Investigation; the results indicated that peak ground acceleration (PGA) with a probability of exceedance of 10 percent in 50 years (475 Year Return Period) is 0.14 g. The deaggregation information indicates that the mean moment magnitude is 6.8 at a mean distance of 68 km. The PGA with a probability of exceedance of 2 percent in 50 years (2475 Year Return Period) is 0.23 g. The mean moment magnitude is 6.7 at a mean distance of 48 km. The 2007 California Building Code (CBO) requires specific “dynamic” lateral force procedures for certain structures to determine their seismic design criteria; others may be designed using a “static” analysis procedure. GSEP will be designed and constructed to the applicable standards of the current CBO for Seismic Zone 4.

Ground Rupture

23. The Project site is not located within a State of California Earthquake Fault Zone designated by the Alquist-Priolo Special Studies Zone Act of 1972 (formerly known as a Special Studies Zone), an area where the potential for fault rupture is considered probable (Riverside County, 2008). In addition, no Quaternary, Sufficiently Active, or Well Defined Faults are located under or near the Site. Based on this information and engineering judgment, earthquake-induced ground rupture is not considered to be a significant hazard at the Site.

Slope Stability

24. The Site is not considered to be an area with the potential for permanent ground displacement due to earthquake-induced landslides because surface topography at and near the site is relatively flat (Riverside County, 2008). A review of the Riverside County General Plan, Safety Element, did indicate areas considered susceptible to earthquake induced landslides and rockfalls in the Palen and McCoy Mountains; however, these areas are several miles from the Site and are not expected to impact the Project. Based on this information and engineering judgment, slope instability is not considered to be a significant hazard at the Site.

Erosion

25. Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Due to generally flat terrain, the Project site is not prone to significant mass wasting (gravity-driven erosion and non-fluvial sediment transport) at present. The Riverside County General Plan, Safety Element (Riverside County, 2008), indicates the Site is in an area with moderate potential for wind erosion, the off-site linears are in areas with moderate to high potential for wind erosion. Soil characteristics at the Project site allow for the potential for wind and water erosion, and significant sediment transport currently occurs across the valley axial drainage that crosses the majority of the proposed plant site. As indicated above, these valley axial deposits are characterized by subdued bar and swale topography and ongoing deposition from sheet floods. Limited sand and aeolian erosion also occurs between depositional episodes.

26. To address the management of sediment transport, erosion and sedimentation during operation, the project design has incorporated diversion berms, channels, detention basins and dispersion structures. The final design for these features included industry-standard calculations and modeling to reduce the potential for erosion or sedimentation, and to reduce the need for ongoing maintenance. Dirt roads and exposed surfaces will be periodically treated with dust palliatives as needed to reduce wind erosion. Construction and maintenance of the proposed drainage and sediment management system at the Site is expected to reduce water and wind erosion at and downstream of the Site to less than significant levels.

Liquefaction

27. Liquefaction is a soil condition in which seismically induced ground motion causes an increase in soil water pressure in saturated, loose, uniformly-graded sands, resulting in loss of soil shear strength. As a result, the effects of liquefaction can include loss of

bearing strength, differential settlement, ground oscillations, lateral spreading, and flow failures or slumping. Liquefaction occurs primarily in areas where the groundwater table is within approximately 50 feet of the surface (Riverside County, 2008). The Riverside County General Plan Safety Element (Riverside County, 2008) indicates that the majority of Chuckwalla Valley, including the soils beneath the Project site and associated Project off-site linears, is mapped as having deep groundwater but underlain by soils with an otherwise moderate susceptibility to liquefaction. The depth to water beneath the Site is estimated to range from approximately 61 to 94 feet bgs. In addition, the sandy soils encountered in the upper 100 feet beneath the Project site during geotechnical drilling are generally dense and well graded. Dense, well-graded sands are not generally considered susceptible to liquefaction. Based on this information and engineering judgment, the potential for liquefaction hazard at the Project site is considered to be low. The potential for liquefaction was evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Differential Settlement

28. Seismically induced settlement can occur during moderate and large earthquakes in soft or loose, natural or fill soils that are located above the ground water table, resulting in differential settlement. The settlement can cause damage to surface and near-surface structures. The most susceptible soils are clean loose granular soils. Due to the expected dense to very dense nature of the near surface soils, the potential for damage due to seismically induced settlement is considered to be low at the Project site. The potential for seismically-induced settlement was evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Collapsible Soil Conditions

29. Alluvial soils in arid and semi-arid environments can have characteristics that make them prone to collapse with increase in moisture content and without increase in external loads. Soils that are especially susceptible to collapse or hydrocompaction in a desert environment are loose dry sands and silts, and soils that contain a significant fraction of water soluble salts. In the Site vicinity, this would include aeolian sand, playa evaporite deposits, and potential loose flash flood deposits. Based on surface reconnaissance, review of geologic mapping, and review of aerial photographs, although there are aeolian deposits south of the Site near Ford Dry Lake, but no significant aeolian or playa deposits are located within the Site. There do not appear to be near surface evaporite deposits associated with Ford Dry Lake (Stone, 2006). The near surface soils at the Site are composed primarily of alluvial soils which appear to have been deposited in relatively thin sheet flood and fluvial deposits have a low potential for hydrocompaction. Based on this data and engineering judgment, the site soils do not have a significant potential for hydrocompaction or collapse. The potential for hydrocompaction and soil collapse was evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Expansive Soil

30. Expansive soil is predominantly fine grai ned and contains clay minerals capable of absorbing water in their crystal structure. It is of ten found in areas that were historically a flood plain or lake area, but can also be asso ciated with some types of shale, volcanic ash or other deposits, and can occur in hillside areas also. Expansive soil is sub ject to swelling and shrinkage, varying in proportion to the amou nt of moisture present in the soil. As wat er is initially introduced into the soil (by rainfall or watering) e xpansion takes place. If dried out, the soil will contract, often leav ing small fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures that are not designed to resist t his effect, and can lead to differential settlement under buildings and other improve ments. The surficial soils at the site gene rally consist o f predominantly granular soils that d o not contain much clay and are not subject t o significant expansion hazards. The potential for expansive soils was evaluated as part of the F inal Geotechnical Investig ation for the Project, and if n ecessary, design parameters to address identified conditions will be incorporated into the detailed project design.

31. Based on the above information, the cut and fill slop e dimensions and earthwork requirements will be adequate to address the st ability of the evaporation ponds and LTU for the life of the project and no further analysis is warranted.

Regional Hydrogeology

32. The site is located in the eastern half of the Chuckwalla Valley Groundwater Basin which encompasses approximately 605,000 acres. The basin gene rally trends east-southeast and is bound ed by consolidated ro cks of the C huckwalla, Little Chuckwalla, and Mule Mountains on the south, of the Eagle Mountains on the west, and of the Mule and McCoy Mountains on the east. Groundwater flow is d irected southward from the basin's boundary with the Cadiz Valley Basin a nd east-southeastward from its boundary with the Pin to Valley Ba sin, toward the eastern basin bound ary where it flows into th e adjacent Palo Verde Mesa Basin. Beneath th e Site, grou ndwater occurs at dep ths ranging from approximately 70 to 90 feet bgs (approximately 298 to 315 feet msl).

33. There are three water-bearing sedimentary units overly non-water bearing bedrock in the Chuckwalla Valle y Groundwater Basin; Quaternary Alluvium., Pliocene Bouse Formation and Miocene Fanglome rate (DWR, 2004; DW R, 1963). DWR reports the maximum thickness of these deposits as ab out 1,200 feet in the Chuckwalla Valley Basin (DWR 1979). Gravity studies performed by USGS ne ar the narrows between the McCoy and Mule Mountains on the southeastern portion of the basin suggests the depth to non-water bearing b edrock ranges from approximately 6 ,500 feet bg s to 1,000 f eet bgs (Wilson and Owens-Joyce 1994).

34. Groundwater quality varies ma rkedly in th e basin. Th e best grou ndwater quality is located in t he western portion of the basin n ear Desert Center and the worst water quality is located in the southeastern portion of the b asin near Ford Dry L ake (Steinemann, 1989). Groundwater to the south and we st of Palen Lake is typically sodium chloride to sodium sulfate-chloride in character (DWR 2004). The detected concentrations of TDS i n the basin ranges from 274 milligra ms per liter (mg/L) to 8,150 mg/L with a n average concentration of 2,100 mg/L (Steinemann 1989). Generally, the dissolved-solids concentrations increase movi ng further downgradient from Desert

Center (to the southeast) and are highest in the central and eastern parts of the basin (Steinemann 1989). In general, the groundwater in the basin has concentrations of sulfate, chloride, fluoride, and dissolved solids too high for domestic use and concentrations of sodium, boron and dissolved solids too high for irrigation use (DWR 1975). Several of the wells sampled in the basin contain high levels of fluoride and boron.

Site Specific Hydrogeology

35. Site-specific investigation indicates the water quality in the study area varies laterally and vertically. Generally, water quality improves vertically with depth and laterally to the south. Vertically, water quality is generally the worst in the alluvium followed by the Bouse Formation and finally by the Fanglomerate. Calculated TDS concentrations from borehole geophysical logging indicate TDS concentrations as high as 30,500 mg/L within finer grained units (silt and clay) in the alluvium decreasing to less than 5,000 mg/L TDS in more transmissive sediments in the Bouse Formation at depths of 800 to 900 feet bgs. Laterally, water quality is generally better south and southeast of the Site within all three water bearing units in the basin. The best water quality in the study area is generally in the vicinity of and south of I-10.

On-site Drainage

36. On-site storm water management for the completed Facility will be provided through the use of source control techniques, site design and treatment control.
The storm flows from the solar collector arrays will be treated through the use of swales, ditches and detention ponds. Minimum preliminary volumes required for the detention basins are 66 acre-feet for Unit 1, and 49 acre-feet for Unit 2. These volumes are based on the detention ponds receiving the 100 year, 24 hour event post-development runoff from the Project site, and then discharging the run-off at the pre-developed rate into the existing drainage system. The Riverside County Best Management Practice (BMP) Manual requires extended detention basins to release runoff over a 48 hour draw down period, and the outlet sized to retain the first half of the design volume for a minimum of 24 hours. During construction of the Facility, storm-water will be retained in the evaporation ponds as required and sampled prior to releasing from the site.

37. Locations within the power block for the potential of chemical or oil releases will be fully contained. Rainfall within the containment areas will be allowed to evaporate or will be drained through an oil water separator. Locations within the power block where "contact" storm water may occur will be contained within a system of curbs or trenches. Drains from these curbed areas or containment trenches will be directed to an oil water separator. The oil separated and captured within the oil water separator will be trucked off-site to a licensed disposal/recycling Facility. Clean water discharged from the oil water separator will be used on Project site by discharging it to the evaporation ponds. The water discharge from the oil water separator will not be discharged to the storm water system.

Facility Operational Water

38. Water to supply the project will be derived from a minimum of two new groundwater supply wells located near each unit's power block area. The wells will pump

groundwater from the Bouse Formation below a depth of 780 feet bgs. Two wells at each units power block will provide redundancy in the event of outages or maintenance.

39. The average total annual water usage for each 125 MW unit is estimated to be about 101 acre-feet per year (afpy), or 202 afpy for the Project, which cor responds to an average daily flow rate of about 1250 gallons per minute (gpm). Usa ge rates will vary during the year and will be higher in the summer months.

40. The TD S concentration of the proposed groundwater supply is 5000 mg/L. The groundwater is not considered a potential source for municipal or dome stic water supply under Resolution 88-63 of the Sta te Water Resources Control Board as the TDS exceeds 3000 mg/L.

Evaporation Ponds (Design and Installation Sequence)

41. The two 3.7-acre evaporation ponds (one per unit) have a proposed average d esign depth of 8 feet across each pond which incorporates:

- 3 feet of sludge buildup;
- 3 feet of operational depth; and
- 2 feet of freeboard.

42. The su b grade un der the lin er system will be sca rified, moisture conditioned, compacted, and proof-rolled with a smooth drum roller to form a competent wo rking surface. The subgrade beneath the geosynthetic clay linger (GCL) nee ds to have an adequate moisture content to ensure effectiveness of the GCL layer. There fore, additional moisture conditioning will be specified immediately prior to installation of the GCL layer. The purpose of this is to add additional moisture beneath the GCL to provide moisture for hydration of the GCL material.

43. The GCL liner will be installed i n accordance with curre nt practices and will employ the use of proper installation requirements, following manufacturer req uirements for the GCL and proper QA/QC during installation to ensure proper continuity of the base layer.

44. The se condary liner or lower liner w ill consist of a 40 mil thick smooth HDPE geomembrane liner with a white upper surface a nd black underside. During installation, the white u pper surface reduces heat, minimizes wrinkling, reduces expansion and contraction and assists in the reduction of conde nsation under the liner. This liner will be installed in accordance with current practices. In ad dition destructive and non-destructive testing procedures will be used to ensure liner quality and continuity.

45. A 200 mil HDPE g eonet type drainage layer will be u sed in the leak detection and collection layer between the primary and secon dary liners. HDPE materials have been selected because polyethylene is not reactive with the fluids and is also readily available, and is easily installed with minimal potential for damage during installation.

46. The base of the eva poration pond leak det ection and collection layer will slope at a minimum inclination of 1% to a lea k collection trench. The trench will contain screened coarse sand (with no fines) and a perforated pi pe that will slope at a minimum inclination

of ¾% towards a leak detection and collection sump, located at the lowest point in the pond. Any leakage collected in the sumps will be removed periodically with portable pumping equipment inserted into the collection sumps by way of an 8" diameter riser. Pumped water will be returned to the evaporation pond, which in turn minimizes the hydraulic pressures across the secondary liners and therefore the risk of leakage through the secondary liner. Leakage rates will be measured using a flow totalizer.

47. The collection sump will include prefabricated and field-fabricated HDPE components with water tight seams and penetrations. To minimize the chance for leakage, the 8" diameter riser pipes from the collection sump are designed such that it only penetrates the primary liner above the top of the pond berm. The liner system will be installed in accordance with current practices. Destructive and non-destructive testing procedures will be used to verify sump and penetration tightness and continuity.

48. This design is consistent with CCR, Title 27, Section 20340, which requires a leachate collection and removal system (LCRS) between the liners for surface impoundments.

49. The upper or primary liner will consist of a 60 mil thick HDPE geomembrane liner with a white upper surface and black underside. During installation, the white upper surface reduces heat, minimizes wrinkling, reduces expansion and contraction, and assists in the reduction of condensation under the liner... Consistent with installation of the secondary liner, current installation, quality control monitoring, testing, and quality assurance measures and techniques will be employed to ensure liner quality and continuity. The primary liner will be protected by a non-woven geotextile that will be installed directly on top of the liner.

50. The moisture detection system below the liner system consists of 4" diameter HDPE perforated pipes installed under each pond at the low points (one pipe per pond) at a depth of approximately 5 feet below the secondary liner. The pipes will be terminated at the side of each pond and rise to the surface equipped with a pull cable system for placement of a moisture sensor for moisture detection.

51. Prior to the placement of the hard surfacing, a 1 foot thick sub-base layer consisting of native granular fill with a maximum particle size of ½" shall be placed and spread over the non-woven geotextile. The sub-based layer will be spread carefully and sequentially to avoid damage to the underlying liner system. After placement, the granular layer will be proof rolled using light compaction equipment.

52. A hard surface / protective layer will be constructed on the sub-base layer. The hard surface will allow for vehicular traffic during unscheduled or emergency maintenance or cleanout. Hard surface will consist of reinforced shotcrete (4,000 psi).

53. An aggregate road base material will be placed along the top of each pond berm to provide an all weather access location for maintenance vehicles. The material will conform to the Department of Transportation Specifications for Class II Aggregate Base. This will be installed to a minimum thickness of 6 inches and will be placed and compacted in accordance with the Department of Transportation requirements.

Action Leakage Rate

54. The action leakage rate (ALR) is the allowable leakage from the primary liner system above which continge ncy actions are triggered. According to Code of Federal Regulations (CFR) Title 40, Section 264.222, the ALR is defined as " …the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding 1 foot". The ALR must also include an adequate safety margin to allow for variability in the containment system design (e.g. liner and collection pipe slope, interstitial fill hydraulic conductivity, thickness of drainage material).

55. The estimated ALR for the evaporation po nds is 2,7 50 gallons p er acre per day. This is based on one standard hole per acre, a drainage layer geonet with hydraulic conductivity of 0.06 m/s and a 50% safety factor. The assu mption underlying this ALR calculation will be verifi ed in the actual constru cted ponds. Based on a 3.7 acre p ond, each evaporation pond would have an ALR o f 10,175 gallons per d ay. Howeve r the ALR will n eed to have field verification as t his rate will vary depe nding on actua l drainage material used and its hydraulic conductivity. A final ALR will be submitted to the CPM, with copies to the Regional Board within six months of effective date of the permit based on field analysis.

56. A large hole in the geomembrane may cau se a rapid large leakag e rate (RLLR) of approximately 9,500 gallons per acr e per day. This would equate to a RLLR of 35,150 gallons per day per (3. 7 acre) pond. The RL LR is provi ded herein for informational purposes only.

57. The recording flow totalizer at each sump will be monitored at least weekly to determine the leakage rate through the primary liner. If th e leakage r ate exceeds th e ALR, then the appropriate actions in the Contingency Plan will be implemented.

Waste Classification

58. Wastewater from several processes within e ach 125MW Unit will be piped to one of two 3.7-acre evaporation pond for disposal. Th erefore there is a tota l Ju ne and 11,400 gpd during the month of December. The peak flow rates occur in the summer mon ths, between May and August, when solar energy production is at a peak.

Waste Water Discharge

59. The combined estimated rate of wastewater discharge into the evaporation po nds is 17,600 gallons per day (gpd) for peak condition s during the month of Ju

Evaporation Residue

60. During the 30-year operating life of the Facility, it is estimated that up to 6.5 ft. of sludge may accumulat e in the bottoms of t he evaporation ponds that consists of precipitated solids from the eva porated wastewater. For operational and safety purposes, the ponds will be cleaned when 3 feet of precipita ted solids are accumulated in the base of the ponds, which is estimated to be every 14.5 years when using

groundwater with a TDS of 5,000 mg/L. Approximately 13,540 tons of evaporative residue will be removed every 14.5 years or approximately 29,350 tons during the 30 year project life.

61. The predicted concentrations of chemical constituents in the evaporation residue in the ponds are less than the Total Threshold Limit Concentrations (TTLCs) for all reported parameters. The predicted concentrations of chemical constituents in the evaporation residue in the ponds is also less than 10 times the Soluble Threshold Limit Concentrations (STLCs) for reported parameters; therefore, further analysis of the residue using the Waste Extraction Test (WET) would not be required and the waste may be classified as non-hazardous under CCR Title 22, Division 4.5. In addition, the total concentrations of chemical constituents in the evaporation residue in the ponds is less than the Toxicity Characteristic Leaching Procedure (TCLP) for all reported parameters; therefore, further analysis of the residue using the TCLP method would not be required and the waste may be considered a non-hazardous waste under federal regulations. Testing of this material will be conducted as part of the Facility monitoring program to verify this characterization. The evaporation residue accumulated in the ponds is non hazardous; however, it does contain pollutants which could exceed water quality objectives if released, or that could be expected to affect the beneficial uses of waters of the state. Therefore, the evaporation residue is classified as a "designated waste." This classification is consistent with CCR Title 27, Chapter 3, Subchapter 2, Article 2 Section 20210.

Land Treatment Unit

62. The proposed design for the LTU has been selected to optimize performance based on the operating requirements. The location of the LTU is shown in Attachment B, as incorporated herein and made a part of this order. The LTU will not incorporate a liner containment system or LDRS, but will be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land farming activities, and will serve to slow the rate of surface water infiltration in the treatment area. The compacted and native soil beneath the LTU is designated as a "treatment zone" to a depth of 5 feet. Although the LTU will be taking vehicle traffic, no hard surface will be required, as there is no liner system to protect. A staging area is allocated in the LTU for storage of HTF-impacted soils while they are being characterized. Soil characterized as hazardous will be removed from the site; therefore, no additional liner system is required in the LTU to cater for the hazardous waste.

63. The LTU will be surrounded on all sides by a 2-foot high compacted earthen berm with side slopes of approximately 3:1 (horizontal: vertical). These berms will control and prevent potential inflow (run-on) of surface storm water into the LTU or runoff of storm water from the LTU.

64. The LTU will be used to treat HTF-affected soil at various concentrations. HTF (Therminol VP-1 or equivalent) is an oil that consists of a mixture of biphenyl and diphenyl oxide that is solid at temperatures below 54 degrees Fahrenheit, is relatively insoluble in water (solubility of approximately 25 milligrams per liter), combustible, and has relatively low volatility (Solutia, 2006). The components of HTF are reported to biodegrade relatively rapidly in the environment, have slight toxicity to tested terrestrial

species, higher toxicity to tested aquatic species, and a potential to bio-accumulate (IPCS, 1999; JECFA, 2003; SOCMA Biphenyl Working Group, 2003).

65. Spills of HTF will be cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material. Samples of excavated HTF-affected soil will be collected in accordance with the Environmental Protection Agency's (EPA's) current version of the manual – "Test Methods for Evaluating Solid Waste" (SW-846) and the waste material characterized in accordance with State and Federal requirements.

66. If the soil is characterized as a hazardous waste, the impacted soils will be transported from the site by a licensed hazardous waste hauler for disposal at a licensed hazardous waste landfill. No HTF-impacted soils characterized as hazardous waste will be disposed or treated on site. Based on past experience, it is anticipated that soil containing 10,000 milligrams per kilogram (mg/kg) HTF or more will be managed as hazardous waste, and that soil containing less than 10,000 mg/kg HTF will be a non-hazardous waste and managed at the Project site. If the soil is characterized as a non-hazardous waste, it will be spread in the LTU for bioremediation treatment. In general, more highly contaminated soil will be covered with plastic sheeting to prevent contact with storm water and to control potential odors and emissions, as well as for moisture and temperature retention. Once the soil has been treated to a concentration of less than 100 mg/kg HTF, it will be moved from the LTU to another portion of the site until it is reused at the Facility as fill material.

67. Based on available operation data from other sites, it is anticipated that approximately 750 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.

68. A spill prevention, control and countermeasure (SPCC) plan will be undertaken for this site. The SPCC will include:

a. Secondary containment around the tanks storing HTF, capable of containing the 110% of the storage tank capacity and/or sufficient freeboard to contain precipitation from a 25-year, 24-hour storm event.

b. It is not practicable to provide secondary containment around HTF product piping, therefore will have daily inspections of all infrastructure containing HTF.

c. If leaks are identified, the affected area will be isolated and spills cleaned up within 48 hours.

Heat Transfer Fluid Treatment Process

69. Treatment of HTF-impacted soil in the LTU will involve moisture conditioning and addition of nitrogen and phosphorous nutrients (i.e., fertilizers) as needed to stimulate consumption of HTF by the indigenous bacteria. The HTF-impacted soil will be moisture conditioned and turned periodically as needed to enhance aeration, promote breakdown of HTF by the indigenous bacteria and/or to control dust emissions. Permanent or

portable irrigation sprinklers will supply water to the area for dust control and to a ssist in treatment.

70. Treatment piles may be co vered by p lastic sheeting as nee ded to enh ance temperature and moist ure retention characteristics, and as needed to control storm water contact, odors and dust emissions.

71. Representative soil samples will be colle cted for every batch of HTF contaminated soil undergoing treatment in the LTU and composited accor ding to methods spe cified in EPA SW-846. It is expected that treatment times will vary between one to four mo nths, depending on initial concentrations, and the ambient air and soil temperature.

Hazardous Waste

72. There will be a variety of chemicals sto red and used during construction and operation of the proje ct. The sto rage, handling, and use of all chemicals will be conducted in accordance with applicable laws, ordinances, regulations, and standards.

73. Hazardous materials will be stored in pr oper containers in mat erial yards and designated construction areas. Cleanup materials (spill kits) will also be stored in these areas. Fuel, oil, and hydraulic fluid s used in on-site vehicl es will be transferred directly from a service truck to construction equipment and will not otherwise be stored on site.

74. Designated, trained service personnel will perform fueling either prior to the sta rt of the workday or at completion of the workd ay. Service personnel and const ruction contractors will follow SOPs for filling and servicing construction equipment and vehicles.

75. Any HTF impacted soil classified as hazardous will be removed from the LTU staging area after the initial characterization. The evaporation ponds will not con tain hazardous wastewater or sludge as it is illegal to discharge ha zardous waste into su rface impoundments under the Toxic Pits Cleanup Act of 1984.

Basin Plan

76. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface water in this Region.

77. The beneficial uses of ground water in the Imperial Hydrological Unit are:

Municipal Supply (MUN)
Industrial Supply (IND)

78. The beneficial uses of nearby surface waters are as follows:

a. Ford Dry Lake
i. Wildlife Habitat (WILD)
ii. Preservation of Rare, Threatened, or Endangered Species (RARE).

b. Palen Dry Lake
i. Wildlife Habitat (WILD)

ii. Preservation of Rare, Threatened, or Endangered Species (RARE)

Monitoring Parameters

79. Based on the chemical characteristics of the projected discharges to the evaporation ponds from wastewater, the following monitoring parameters are required. These specific parameters are selected because they provide the best distinction between the wastewater and the groundwater in the Project area that can be used to differentiate a potential release that could change the chemical composition of the groundwater.

a. Cations: Antimony, Arsenic, Barium, Cadmium, Calcium, Total Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Zinc;

b. Anions: Chloride and Sulfate; and

c. Other: HTF, Total Dissolved Solids, Specific Conductivity, and pH.

California Environmental Quality Act (CEQA)

80. The environmental review program of the California Energy Commission (CEC), which has exclusive jurisdiction over the permitting of this Facility, has been certified by the California Secretary for Natural Resources as meeting the requirements of Public Resources Code Section 21080.5 to exempt the CEC's power plant certification program from the CEQA requirements to prepare EIR's, negative declarations, and initial studies. (See CCR, Title 14, Section 15251(k).) Accordingly, the CEC has prepared the appropriate substitute CEQA environmental documents, identified as the Final Staff Assessment, pursuant to its responsibilities as Lead Agency for this site certification program. As a Responsible Agency under CEQA, the Regional Water Board has considered these substitute environmental documents and the potential impacts to water quality the CEC identified and addressed pursuant to specified mitigation measures made a condition of the CEC's site certification approval. The Regional Water Board has concluded that compliance with the CEC's mitigation measures and these waste discharge requirements will prevent any significant adverse impacts to water quality.

Anti-Degradation Policy

81. State Water Resources Control Board (State Water Board) Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State"; hereafter Resolution 68-16) requires a Regional Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in plans and policies (e.g. violation of any water quality objective). The discharge is required to meet waste discharge requirements that result in the best practicable treatment or control of the discharge necessary to assure pollution or nuisance will not occur, and the highest water quality consistent with maximum benefit to the people will be maintained. Therefore, the requirements of Resolution 68-16 will be met.

Monitoring and Reporting Program

82. The monitoring and reporting requirements in Monitoring and Reporting Program R7-2013-0005, and the requirement to install groundwater monitoring wells, are necessary to determine compliance with these WDRs, and to determine the Facility's impacts, if any, on receiving water.

Notifications

83. The Board has notified the Discharger and all known interested agencies and persons of its intent to prepare these WDRs for said discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.

84. The Board, in a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, that in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, the Discharger shall comply with the following:

A. Discharge Specifications

1. The treatment or disposal of wastes at this Facility shall not cause pollution or nuisance as defined in Sections 13050 of Division 7 of the CWC.

2. The Discharger will maintain the monitoring wells in good working order at all times. Well maintenance may include periodic well re-development to remove sediments.

3. Thirty days prior to introduction of a new waste stream into the evaporation ponds, the Discharger must receive approval from the Regional Board's Executive Officer.

4. Waste material shall be confined or discharged to the evaporation ponds.

5. Prior to drilling a new well or abandoning a well at the Facility, the Discharger shall notify, in writing, the Regional Board's Executive Officer of the proposed change.

6. Containment of waste shall be limited to the areas designated for such activities. Any revision or modification of the designated waste containment area, or any proposed change in operation at the Facility that changes the nature and constituents of the waste produced must be submitted in writing to the Regional Board's Executive Officer for review and approval before the proposed change in operations or modification of the designated area is implemented.

7. Any substantial increase or change in the annual average volume of material to be discharged under this order at the Facility must be submitted in writing to the Regional Board's Executive Officer for review and approval.

8. If any portions of the evaporation ponds are to be closed, the Discharger shall notify the Regional Board's Executive Officer at least 180 days prior to beginning any partial or final closure activities.

9. Fluids and/or materials discharged to and/or contained in the evaporation ponds shall not overflow the ponds.

10. Prior to the use of new chemicals for the purposes of adjustment or control of microbes, pH, scale, and corrosion of the cooling tower water and wastewater, the Discharger shall notify the Regional Board's Executive Officer in writing.

11. For the liquids in the evaporation ponds, a minimum freeboard of two (2) feet shall be maintained at all times.

12. Final disposal of residual waste from cleanup of the evaporation ponds shall be accomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure of operations.

13. The evaporation ponds shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 years.

14. Prior to removal of solid material that has accumulated in the concrete cooling tower basins, an analysis of the material must be conducted and the material must be disposed of in a manner consistent with that analysis and applicable laws and regulations.

15. Conveyance systems throughout the Facility area shall be cleaned out at least every 90 days to prevent the buildup of solids or when activity at the site creates the potential for release of solid materials from the conveyance systems.

16. Pipe maintenance and de-scaling activities that include hydroblasting and/or sandblasting shall be performed within a designated area that minimizes the potential for release to the environment. Waste generated as a result of these activities shall be disposed of in accordance with applicable laws and regulations. Water from the hydroblasting process shall be conveyed to the evaporation ponds.

17. Public contact with wastewater shall be precluded through such means as fences, signs, or other acceptable alternatives.

18. Implementation of erosion control measures shall assure that small coves and irregularities are not created.

19. The liner beneath the evaporation ponds shall be appropriately maintained to ensure its proper function.

20. Solid material shall be removed from the evaporation ponds in a manner that minimizes the likelihood of damage to the liner.

21. Ninety days prior to the cessation of discharge operations at the Facility, the Discharger shall submit a workplan, subject to approval of the Regional Board's Executive Officer, for assessing the extent, if any, of contamination of natural geological materials and waters of the Ford Hydrological Unit by the waste. One hundred and twenty days following workplan approval, the Discharger shall submit a technical report presenting results of the contamination assessment. A California Registered Civil Engineer or Certified Engineering Geologist must prepare the workplan, contamination assessment, and engineering report.

22. Upon ceasing operation at the Facility, all waste, all natural geologic material contaminated by waste, and all surplus or unprocessed material shall be removed from the site and disposed of in accordance with applicable laws and regulations.

23. The Discharger shall establish an irrevocable bond for closure in an amount acceptable to the Regional Board's Executive Officer or provide other means to ensure financial security for closure if closure is needed at the discharging site. The closure fund shall be established (or evidence of an existing closure fund shall be provided) within six (6) months of the adoption of this Order.

24. Surface drainage from tributary areas or sub surface sources shall not contact or percolate through the waste discharged at this site.

25. The Discharger shall implement the attached Monitoring and Reporting Programs R7-2013-0005 and revisions thereto, which are incorporated herein and made a part of this Order by reference, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the Facility, or any impairment of beneficial uses associated with (caused by) discharges of waste to the brine pond.

26. The Discharger shall use the constituents listed in Monitoring and Reporting Program R7-2013-0005 and revisions thereto, as "Monitoring Parameters".

27. The Discharger shall follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the Regional Board. The following are parts of WQPS as established by the Regional Board's Executive Officer:

28. The Discharger shall test for the monitoring parameters and the Constituents of Concern (COCs) listed in the Monitoring and Reporting R7-2013-0005 and revisions thereto.

29. Concentration Limits – The concentration limit for each monitoring parameter and constituents of concern for each monitoring point (as stated in the Detection Monitoring Program), shall be its background valued as obtained during that reporting period.

30. All current, revised, and/or proposed monitoring points must be approved by the Region Board's Executive Officer.

31. All current, revised, and/or proposed monitoring points must be approved by the Regional Board's Executive Officer.

32. Water used for the process and site maintenance shall be limited to the amoun t necessary in the process, for du st control, and for Facility clean up and maintenance.

33. The Discharger shall n ot cause or permit the release of pollutants, or waste constituents, in a manner which could cause or contrib ute to a co ndition of contamination, nuisance, or pollution to occur.

34. The Discharger must develop an d implement a Hazardous Materials Business Plan (HMBP), which will include, at a minimum, procedures for:

a) Hazardous materials handling, use, and storage;
b) Emergency response;
c) Spill control and prevention;
d) Employee training; and
e) Reporting and record keeping.

35. Hazardous materials expected to be used during constru ction include: unleaded gasoline, diesel fuel, oil, lubricants (i.e., motor oil, transmission fluid, a nd hydraulic fluid), solvents, adhesives, and paint materials. There are no feasible alternatives to these materials for construction or operation of construction vehicles and equipment, or for painting and caulking buildings and equipment.

36. The construction contractor will be responsible for assuring that the use, storage and handling of these materials will comply with applicab le federal, state, and local laws, ordinances, regulations and standards (LORS), including licen sing, personnel training, accumulation limits, reporting requirements, and recordkeeping.

37. During Facility operations, chemicals will be stored in chemical storage area s appropriately designed for their ind ividual characteristics. Bulk chemicals will be stored outdoors on impervious surfaces in aboveground storage tanks wit h secondary containment. Secondary containment areas for bulk storage tanks will not have drains. Any chemical spill s in these a reas will b e removed with portable equipment and reused or disposed of properly. Other che micals will be stored and used in their delivery containers.

38. A portable storage trailer may be on site f or storage of maintenance lube oils, chemicals, paints, and other construction materials, as needed. All dr ains and vent piping for volatile che micals will be trapped and isolat ed from other drains to eliminate noxious vapo rs. The st orage, containment, handling, and use of these chemicals will be ma naged in accordance with applicable laws, ordinances, regulations, and standards.

39. Small quantities of hazardous wastes will be genera ted over the course of construction. These may include paint, spent so lvents, and spent welding materials. Some hazardous wastes will be recycled, including use d oils from equipment maintenance, and oil-contaminated materials such as spen t oil filters, rags, or other cleanup materials. Used oil must be recycled, and oil or he avy metal contaminated

materials (e.g., filters) requiring disposal must be disposed of in a Class I waste disposal facility. Scale from pipe and equipment cleaning operations, and solids from the evaporation pond, will be disposed of in a similar manner.

40. All hazardous wastes generated during Facility construction and operation must be handled and disposed of in accordance with applicable laws, ordinances, regulations, and standards. Any hazardous wastes generated during construction must be collected in hazardous waste accumulation containers near the point of generation and moved daily to the contractor's 90-day hazardous waste storage area located on site. The accumulated waste must subsequently be delivered to an authorized waste management facility. Hazardous wastes must be either recycled or managed and disposed of properly in a licensed Class I waste disposal facility authorized to accept the waste.

41. The Discharger shall monitor the evaporation ponds in conformance with applicable CCR Title 27 requirements for Class II surface impoundment waste management units.

42. The leachate collection and removal system must be used to provide preliminary detection monitoring of leaks through the top liner of the double-lined evaporation ponds. Physical evidence of leachate beneath the upper concrete liner shall be interpreted as a warning that containment of the evaporation pond contents may be compromised.

43. Groundwater monitoring wells must be constructed adjacent to and both up gradient and down gradient of the evaporation ponds to provide background and detection monitoring for any potential release from the evaporation ponds containment. The Point of Compliance to be used for the detection monitoring must be the uppermost shallow groundwater beneath the evaporation pond. The groundwater monitoring wells must be constructed in conformance with Title 27 CCR Section 20415 requirements. The monitoring wells must be designed to meet the background and detection monitoring requirements in conformance with Title 27 CCR Section 20415(b)(1)(B) as applicable, including:

a. Providing a sufficient number of monitoring points to yield ground water samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and to allow for the detection of a release from the evaporation ponds;

b. Providing a sufficient number of monitoring points installed at locations and depths to yield ground water samples from the upper most aquifer to provide the best assurance of the earliest possible detection of a release from the evaporation ponds;

c. Providing a sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield ground water samples from zones of perched water to provide the best assurance of the earliest possible detection of a release from the evaporation ponds; and

d. Selecting monitoring point locations and depths that include the zone(s) of highest hydraulic conductivity in the ground water body monitored.

44. The detection monitoring wells shall be constructed to meet the well performance standards set forth in Title 27 CCR Section 20415(b)(4), as applicable, including:

a. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport.

b. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative ground water samples.

c. For each monitoring well, the annular space (i.e., the space between the bore hole and well casing) above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the ground surface, entry of contaminants from the unsaturated zone, cross contamination between portions of the zone of saturation, and contamination of samples.

d. All monitoring wells shall be adequately developed to enable collection of representative ground water samples.

45. The monitoring program must also meet the general requirements set forth in Title 27 CCR Section 20415(e), which require that all monitoring systems be designed and certified by a registered geologist or a registered civil engineer. The applicable general requirements set forth for boring logs, quality assurance/quality control, sampling and analytical methods used, background sampling, data analysis, and other reporting as applicable will be implemented.

46. Baseline samples of the groundwater must be collected from each of the monitoring wells and analyzed prior to discharging wastewater to the evaporation ponds. The groundwater must be initially sampled for each of the proposed monitoring parameters listed in the attached Monitoring and Reporting Program R7-2013-0005 and any additional Constituents of Concern (COC) identified by the Regional Board.

B. Prohibitions

1. The discharge or deposit of solid waste to the evaporation ponds as a final form of disposal is prohibited, unless authorized by the Regional Board's Executive Officer.

2. The Discharger is prohibited from discharging, treating or composting at this site the following wastes:

    a. Municipal solid waste;

    b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);

    c. Septage;

d. Liquid waste, unless specifically approved by this Order or by the Regional Board's Executive Officer;

e. Oily and greasy liquid waste; unless specifically approved by these WDRs or by the Regional Board's Executive Officer;

f. Hot, burning waste materials or ash.

3. The Discharger shall not cause degradation of any groundwater aquifer or water supply.

4. The discharge of waste to land not owned or controlled by the Discharger is prohibited.

5. Use of wastewater or cooling tower liquids on access roads, well pads, or other developed project locations for dust control is prohibited.

6. The discharge of hazardous or designated wastes to other than a waste management unit authorized to receive such waste is prohibited.

7. Any hazardous waste generated or stored at the Facility will be contained and disposed in a manner that complies with federal and state regulations.

8. Wastewater or any fluids in the evaporation ponds shall not enter any canal, drainage, or drains (including subsurface drainage systems) which could provide flow to the Waters of the State.

9. The Discharger shall appropriately dispose of any materials, including fluids and sediments removed from the evaporation ponds.

10. The Discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

11. Direct or indirect discharge of any waste to any surface water or surface drainage courses is prohibited.

12. The Discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to Monitoring and Reporting Program R7-2013-0005 and future revisions thereto.

C. Provisions

1. The Discharger shall comply with Monitoring and Reporting Program R7-2013-0005 and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Unless otherwise approved by Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health. All analyses shall be conducted in accordance with the latest edition of "Guideline Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency (EPA).

3. The laboratory shall use detection limits less than or equal to Environmental Protection Agency (EPA) Action Level/Maximum Contaminate Levels (MCLs) or California Department of Public Health (CDPH) Notification Level/MCL for all samples analyzed. The lowest concentration, whether EPA or CDPH, of the two agencies must be used for the analysis.

4. Prior to any change in ownership of this operation, the Discharger shall transmit a copy of the Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

5. Prior to any modification in this Facility that would result in material change in the quality or quantity of discharge, or any material change in the location of discharge, the Discharger shall report all pertinent information in writing to the Regional Board's Executive Officer and obtain revised requirements before any modification is implemented.

6. All permanent containment structures and erosion and drainage control systems shall be certified by a California Registered Civil Engineer or Certified Engineering Geologist as meeting the prescriptive standards and performance goals.

7. The Discharger shall ensure that all site-operating personnel are familiar with the content of these WDRs, and shall maintain a copy of these WDRs at the site.

8. These WDRs do not authorize violation of any federal, state, or local laws or regulations.

9. The Discharger shall allow the Regional Board, or an authorized representative, upon presentation of credential and other documents as may be required by law, to:

   a. Enter upon the premises regulated by these WDRs, or the place where records must be kept under the conditions of these WDRs;

   b. Have access to and copy, at reasonable times, any records that shall be kept under the condition of these WDRs;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under these WDRs; and

   d. Sample or monitor at reasonable times, for the purpose of assuring compliance with these WDRs or as otherwise authorized by the CWC or California Code of Regulations, any substances or parameters at this location.

10. The Discharger shall comply with all of the conditions of these WDRs. Any noncompliance with these WDRs constitutes a violation of the Porter-Cologne Water Quality Act and may be grounds for enforcement action.

11. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with these WDRs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

12. These WDRs do not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

13. The Discharger shall comply with the following:

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. The Discharger shall retain records of all monitoring information, copies of all reports required by these WDRs and records of all data used to complete the application for these WDRs, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board's Executive Officer at any time.

c. Records of monitoring information shall include:

d. The date, exact places, and time of sampling or measurements.

e. The individual(s) who performed the sampling or measurements.

f. The date(s) analyses were performed.

g. The individual(s) responsible for reviewing the analyses.

h. The results of such analyses.

i. Monitoring must be conducted according to test procedures described in the Monitoring and Reporting Program, unless other test procedures have been specified in this Board Order or approved by the Regional Board's Executive Officer.

14. All monitoring systems shall be readily accessible for sampling and inspection.

15. The Discharger is the responsible party for the WDRs, and the monitoring and reporting program for the Facility. The Discharger shall comply with all conditions of these WDRs. Violations may result in enforcement actions, requiring corrective action or imposing civil monetary liability.

16. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

17. The Discharger may be required to submit technical reports as directed by the Regional Board's Executive Officer.

18. The procedure for preparing samples for the analyses shall be consistent with the Monitoring and Reporting Program R7-2013-0005 and any future revisions thereto. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of the company. All technical reports require the signature of a California Registered Professional Engineer or Professional Geologist.

19. All monitoring shall be completed as described in Title 27 of the CCRs.

20. These WDRs do not convey property rights of any sort, or any exclusive privileges; nor does it authorize injury to private property, invasion of personal rights, or infringement of federal, state, or local laws and regulations.

21. These WDRs may be modified, rescinded, or reissued for cause. The filing of a request by the Discharger to modify, or rescind or reissue these WDRs does not stay any WDR condition. Likewise, notification of planned changes or anticipated noncompliance does not stay any WDR condition. Causes for modification include: changes in land application plans, sludge use, or disposal practices; or promulgation of new regulations by the State or Regional Boards, including revisions to the Basin Plan.

22. Within thirty days of the adoption of these WDRs, the Discharger shall submit to the to the Regional Board Executive Officer a list of surface landowners (including responsible contact's name, address and phone number) for all land containing existing or proposed Facilities and/or appurtenances related to the operation of this Solar Energy Project. This list will be used to contact responsible parties if corrective action measures become necessary due to a release of pollutants to the environment.

I, Robert Perdue, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on March 14, 2013.

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ROBERT PERDUE
Executive Officer